

Application No. 10/617,281
Amendment
June 17, 2008

AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended). A signal receiver having calibration for a frequency dependent I/Q phase error, comprising:

a calibration tone generator for generating a calibration tone for providing in-phase (I) and quadrature phase (Q) tone components;

I and Q lowpass filters for filtering said I and Q calibration tones for issuing filtered I and Q output tones having an undesired frequency dependent I/Q phase error, at least one of the I and Q lowpass filters having an adjustable characteristic; and

a correlator for cross correlating said I and Q output tones for providing a cross correlation feedback signal, said cross correlation feedback signal being used and driven to near zero for adjusting said adjustable characteristic for reducing said frequency dependent I/Q phase error and for minimizing a phase difference between said I output tone and said Q output tone;

wherein said I and Q lowpass filters include an I analog lowpass filter for providing said I output tone and a Q analog lowpass filter for providing said Q output tone and said adjustable characteristic is a cutoff frequency of at least one of said I and Q analog lowpass filters.

Claim 2 (cancelled).

Claim 3. (previously presented). The receiver of claim 1, wherein:
said calibration tone has a frequency near to a cutoff frequency for said I and Q lowpass filters.

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Claim 4 (cancelled).

Claim 5 (previously presented). The receiver of claim 1, wherein:
said cutoff frequency is adjusted by frequency scaling at least one pole and at least one
zero of said at least one of said I and Q analog lowpass filters by a certain common
factor.

Claim 6 (previously presented). The receiver of claim 5, wherein:
said certain common scale factor is adjusted by adjusting a channel resistance of at least
one transistor.

Claim 7 (cancelled).

Claim 8 (cancelled).

Claim 9 (original). The receiver of claim 1, further comprising:
a frequency downconverter including a local oscillator for providing a complex
LO signal and I and Q frequency downconverters using said LO signal for
downconverting an input signal having a carrier frequency to I and Q signal components;
and wherein:

the calibration tone generator issues a calibration signal as said input signal
having a certain frequency offset from said carrier frequency for providing said I and Q
calibration tone components in place of said I and Q signal components.

Claim 10 (currently amended). A method for correcting frequency dependent I/Q
phase error, said method comprising:

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generating a calibration tone for providing in-phase (I) and quadrature phase (Q) tone components;

filtering said I and Q calibration tones for providing filtered I and Q output tones having undesired frequency dependent I/Q phase error, comprising:

filtering said I calibration tone component with an I analog lowpass filter for providing said I output tone; and

filtering said Q calibration tone component with a Q analog lowpass filter for providing said Q output tone;

cross correlating said I and Q output tones for providing a cross correlation feedback signal; and

adjusting an adjustable characteristic of at least one of the I and Q filters ~~with~~ by driving said correlation feedback signal to near zero for reducing said frequency dependent I/Q phase error comprising :

adjusting a cutoff frequency of at least one of said I and Q analog lowpass filters; and

minimizing a phase difference between said I output tone and said Q output tone.

Claim 11 (cancelled).

Claim 12 (previously presented). The method of claim 10, wherein:
said calibration tone has a frequency near to a cutoff frequency for said I and Q analog lowpass filters.

Claim 13 (cancelled).

Claim 14 (previously presented). The method of claim 10, wherein:

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adjusting said cutoff frequency includes frequency scaling at least one pole and at least one zero of said at least one of said I and Q analog lowpass filters by a certain common factor.

Claim 15 (previously presented). The method of claim 14, wherein:
frequency scaling includes adjusting a channel resistance of at least one transistor.

Claim 16 (cancelled).

Claim 17 (cancelled).

Claim 18 (previously presented). The method of claim 10, further comprising:
frequency downconverting an input signal having a carrier frequency with a complex LO signal to I and Q signal components; and wherein:
generating said calibration tone includes issuing a calibration signal as said input signal having a certain frequency offset from said carrier frequency for providing said I and Q calibration tone components in place of said I and Q signal components.